

PRACTICAL POINTS
IN THE
TREATMENT OF CLUB-FOOT



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Practical Points in the Treatment of Club-foot.¹

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THE treatment of congenital club-foot is a subject doubtless as old as the hills, and yet ever new, since the correct method of treatment is apparently as far as ever from being well established and unanimously accepted. I cannot hope to do, this evening, what so many experimenters in so many years have not done, but will present some thoughts which may, on the one hand, assist the practitioner burdened with such a case, and, on the other hand, relieve some beginner from the false notion that a rapid and brilliant success is within his reach in cases of this kind.

I will limit myself to emphasizing two, and perhaps three, points of practical interest. It is well to bear in mind, to begin with, that there is a vast difference in such a case between a child walking and a child recumbent. When the baby is in arms the case is still uncomplicated by the weight of the body thrown on the deformed foot. And this is the first practical point in the treatment of this affection which I would emphasize, and would repeat as follows: While the child is in arms,

¹ Read before the New York County Medical Association, May 16, 1892.

and the case is yet free from the complications and difficulties caused by the falling of the weight of the body on the deformed foot, the case should receive the most assiduous and persistent attention. These twelve months, more or less, are the most important year in the history of the case, because in this interval the foot is to be so changed that when the child becomes active on his feet the application of a slight walking-brace, exerting only a moderate degree of force, will convert the weight of the body from a deforming to a correcting force. During

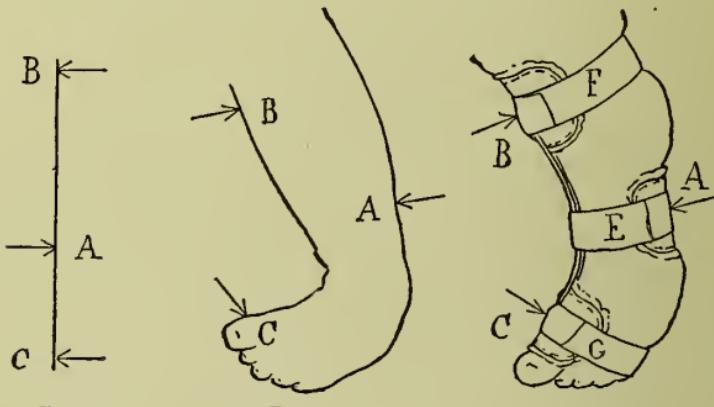


FIG. 1.

FIG. 2.

FIG. 3.

these months of recumbency, with the weight of the body out of the way, with all the tissues comparatively soft and formative, and the foot more than doubling in size with the growth of the child, there is every reason to expect to succeed in what we undertake, provided time enough be given to the case, and faithful attention to the details.

The agent used to effect this partial reduction before the child learns to stand is a simple retentive splint, which acts as a lever, making pressure at A, in Figs. 2 and 3, on the outer side of the leg and foot, on the convexity of the deformity, and counter-pressure at two points, one on the inner side of the leg, below the knee, at B, and the other on the inner border of the foot at C.

The fact that this simple instrument is a lever is the second practical point which I would emphasize, because if we know that we are making use of a lever, with its well-defined three points of pressure, or rather one point of pressure, A, and two of counter-pressure, B and C, we can get more out of the apparatus than if we view it in a more indefinite way, as an application for improving the shape of the foot and leg. I use a little brace made of sheet brass, doing the work with a few simple tools. One advantage of doing the work yourself is that you know whom to blame if the work is not properly done. Two curved disks, B and C, in Figs. 4, 5, and 6, of thin brass, are riveted to the ends of a narrower and thicker piece, D, to form the part of the brace which makes the two points of counter-pressure. A third disk, or shield, A, in Figs. 4, 5, and 6, is applied to the convexity of the deformity with a strap of adhesive plaster, E, in Fig. 3, surrounding the leg, and including the shield and the piece which connects the two disks. All the disks are to be lined with pieces of blanketing easily renewed. These braces are so cheap and easily knocked together that it is nothing to apply new and larger ones, using heavier materials as the child grows.

The brace is applied with three narrow straps of adhesive plaster. The upper and lower straps, F and G, in Fig. 3, are simply to keep the apparatus in place, while, by drawing the middle strap, E, tightly over the shield, and straightening the brace from time to time, the deformity is gradually and slowly reduced. At each re-application the brace is to be made a little straighter than the foot and leg at that stage. This may readily be done by the hands, and then the middle strap is to be tightened over the shield till the shape of the limb agrees with that of the brace. After a few days the brace is to be made still more straight, and again reapplied and made tight till another point of improvement is gained. The brace is applied very crooked at the beginning of treatment, as in Fig. 4, and is straightened from time

to time, and a larger brace applied as the deformity is reduced and the patient grows. It may be removed every week or so, and an interval of a few days allowed for freedom from the brace, when the mother is directed to manipulate the foot, using as much force as she will in the direction of symmetry.

By this simple and prosy treatment, carried out systematically and without haste, or violence, or pain, the foot, unless it is a frightful exception, may with certainty be changed from varus to valgus. Fig. 4 shows approximately the shape of the brace at the beginning of treatment, Fig. 5 when the varus is reduced, and Fig.

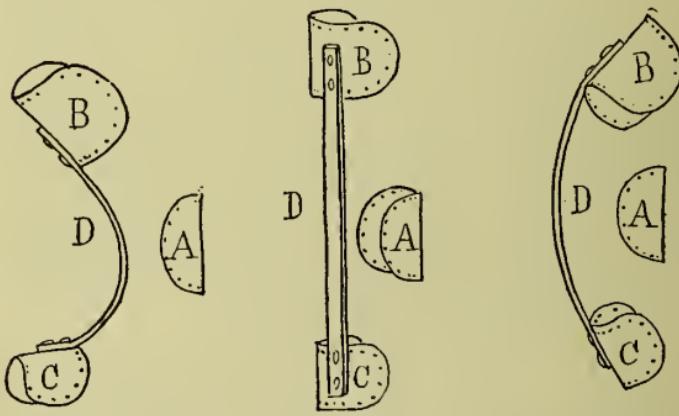


FIG. 4.

FIG. 5.

FIG. 6.

6 when valgus has taken the place of varus. The foot in this latter stage may not hold itself valgus when left to itself, but with almost no force, and with one finger, it may be pushed into valgus, and in this condition it must be when the child begins to walk, and then an entirely new phase of treatment begins.

The brace useful to this point is now useless, because it cannot hold the foot against the overpowering weight of the child when he stands, and yet, with no brace at all, every step made with the outer border of the foot on the floor is a force perpetuating and increasing the deformity. Here

it has been noticed that there is an important boundary line between deformity and symmetry. If the foot is held in some way on the right side of this line, each step forces it in the direction of valgus, and the increasing weight of the child is a powerful force, acting in the right direction so long as the foot is held, though never so little, looking toward symmetry. It may be said that the child stamps himself straight. If, on the other hand, the foot is held, or allowed to go, on the wrong side of this line, though never so little, each footstep is a blow driving the foot more and more into the varus position. And this is the third point which I would especially emphasize. From the time the child begins to stand, the weight of the body should be made to act against, instead of in favor of, the deformity. This may be done by mechanically holding the foot in a proper position to receive the weight pressing down from above. If this is not done, standing and walking will increase the deformity.

The brace needed from this time on must be made of steel by an instrument-maker. Like the one which is used in the beginning of treatment, one of its functions is to act as a lever against the deformity, but the leverage now used is not so much to overcome the deformity directly, which cannot be undertaken with success against the weight of the body. The force of the lever is now applied to hold the foot on the right side of the boundary line above mentioned, so that the weight of the body straightens the foot in a direct and forcible manner.

The brace used at this stage consists of the ordinary foot-piece and upright, with a transverse band at the upper part. The band is placed behind in order to give attachment to a piece of webbing which crosses the front of the leg. The upright is on the inner side of the leg. The upright is to be bent from time to time as the foot improves. This and other parts of the brace should be made of mild steel, to facilitate alterations in shape and the shifting of buckles and straps as required, all of

which may be done by the use of a few simple tools. The foot-piece, riveted to the upright, has the usual riser on the inner side of the foot, to which is riveted an ear made of sheet brass to keep the great toe down, and a spur projecting upward from the back part of the outer border of the tread to give attachment to one end of a piece of webbing which makes the heel-cup, the other end of the webbing being riveted to the lower part of the upright. The foot-piece is lined with adhesive plaster to prevent rust, and with a piece of truss leather fastened with two rivets. In practice the details demand as much attention as the principles of treatment. The brace is worn over the stocking and under the shoe, while the moderate pressure necessary is made by buckles and pieces of webbing.

Besides keeping the foot in proper position to receive the weight of the body, I may mention two or three other advantages to be derived from the use of this brace. For instance, a narrow strap of adhesive plaster wound around the foot and buckled to the riser of the foot-piece rotates the sole of the foot outward and combats the varus. Again, as the deformity is reduced and the upright is bent, the tread of the foot-piece becomes an inclined plane, higher on the outer border and lower on the inner border of the foot, the effect of which is to combat the varus by rotating the sole of the foot outward. Furthermore, the addition of a strap making pressure backward at the upper part of the leg transfers to this point some of the pressure which would otherwise be received, when the patient walks, on the anterior part of the sole of the foot, thus facilitating the correction of the varus, and making it possible at a later stage of treatment to stretch the tendo Achillis by gradually reducing the obtuse angle which is made at first between the upright and the foot-piece.

As the child outgrows this walking brace a larger one is to be made, and when three or four years old the foot will, without the help of the brace, strike the ground so

fairly that, for two or three years, all treatment may be suspended. The patient is to be observed from time to time, however, and as the foot grows in its original inclination to varus, it will, after the lapse of two or three years more, have to be kept in proper position under the rapidly increasing weight of the body by a brace similar to the last for another period of two or three years. When the foot is full grown it will be normal and shapely in appearance when dressed, and practically perfect in its ability to perform all the functions of a foot congenitally normal. While the foot is under treatment in this way the improvement is continuous, and the natural and obvious result of the means used, considerations which bespeak and retain the confidence of the parents of a child thus affected, a practical point, in closing, not to be overlooked in cases which occupy so much time in treatment.

